

DRAFT

**APPLICATION FOR
FEDERAL
NO DISCHARGE ZONE
DESIGNATION**

Submitted to the U.S. Environmental Protection Agency, Region III, by the Commonwealth of Virginia

Farnham Creek, Lancaster/Morattico Creek (Richmond County Section)

Richmond County, Virginia

10 September 2010

Purpose and Background Information

Virginia House Bill 1774 (March 27, 2009) has established the tidal creeks of the Commonwealth as *No Discharge Zones*. Vessels operating in these designated areas may be prohibited from discharging treated and untreated waste into the waters. A *No Discharge Zone* can be established on those tidal creeks where the U.S. Environmental Protection Agency has determined that sufficient facilities exist for the removal of sewage.

The establishment of NDZs is done through applications to the U.S. Environmental Protection Agency. Each application includes a variety of data used to determine whether the proposed tributaries should become a No Discharge Zone or not.

Prepared by the Northern Neck Planning District Commission for the Virginia Department of Environmental Quality

The Northern Neck Planning District Commission
P.O. Box 1600
Warsaw, Virginia 22572
804.333.1900
www.nnpdc.org



Virginia Department of Environmental Quality
629 East Main Street
P.O. Box 1105
Richmond, VA 23218
804.698.4000
www.deq.virginia.gov



TABLE OF CONTENTS

1. INTRODUCTION	5
1.1 Description of Area & Geographic Location	5
1.2 Discharges	5
1.3 Drainage Areas of Watershed	6
1.4 Shoreline.....	6
1.5 Water Characteristics	6
1.6 Depth	6
1.7 Certification of Need	6
1.8 Proposed Boundaries of the No Discharge Zone	6
2. RESOURCES AND ENVIRONMENTAL ISSUES	7
2.1 Human Use.....	7
2.2 Wildlife	7
2.3 Water Quality Issues.....	7
2.4 Shellfish	8
3. FACILITY INFORMATION	9
3.1 Facility Maintenance	9
3.2 Facility Waste Treatment Method.....	9
3.3 Number of Vessels and Estimated Number of Facilities Needed	10
4. ENFORCEMENT, SUPPORT, AND OUTREACH ACTIVITIES.....	11
4.1 State Regulations	11
4.2 Local Enforcement Capability	11
4.3 Local Public Support and Outreach.....	12
4.4 Existing Point Source Pollution.....	12
5. SUMMARY	12
6. MAPS	14
6.1 Farnham Creek Proposed No Discharge Zone	14
6.2 Lancaster/Morattico Creek Proposed No Discharge Zone.....	15
6.3 Farnham Creek Water Depth	16
6.4 Lancaster/Morattico Creek Water Depth	17
6.5 Farnham Creek Condemned Shellfish Area Map.....	18
6.6 Lancaster/Morattico Creek Condemned Shellfish Area Map	19
7. FACILITY REQUIREMENTS WORKSHEET	20
8. REFERENCES	21
8.1 Species	21
8.2 Public Support	22
8.3 Marine Sanitation Device (MSD) Standard.....	23
8.4 Virginia House Bill 1774.....	24
8.5 Commonwealth of Virginia Sanitary Regulations for Marinas and Boat Moorings.....	25
8.6 Additional References and Sources	27
9. PUBLIC MEETING	30
9.1 *** TBA ***	30

BLANK PAGE

APPLICATION FOR FEDERAL *NO DISCHARGE ZONE* DESIGNATION

Submitted to the U.S. Environmental Protection Agency, Region III, by the Commonwealth of Virginia

Date of Submission: _***TBA***_

Bodies of Water Affected: **Farnham Creek, Lancaster/Morattico Creek**

Location: Richmond County, VA

1. INTRODUCTION

The establishment of **No Discharge Zones** is one of the strategies under the 2000 Chesapeake Bay Agreement. More specifically, Virginia House Bill 1774 (March 27, 2009) established all tidal creeks of the Commonwealth as **No Discharge Zones**—that is, zones where vessels may be prohibited from discharging treated or untreated waste into the waters.

Because the final decision on whether a creek becomes a **No Discharge Zone** rests with the U.S. Environmental Protection Agency, this application submits pertinent data to help the EPA make that decision regarding the following state waters:

NDZ (Creek Name)	Shellfish TMDL Status	County
Farnham	Approved	Richmond
Lancaster/Morattico	Approved	Richmond

1.1 Description of Area & Geographic Location

- **Farnham Creek:** A rural watershed in Virginia's Coastal Plain, on the Northern Neck peninsula, Richmond County. It drains to the Chesapeake Bay via the Rappahannock River and includes all contiguous waters upstream of the line formed between the points with coordinates 37.826 N, 76.682 W and 37.825N, 76.680 W (Map 6.1, Page 14).
- **Lancaster/Morattico Creek:** A rural watershed in Virginia's Coastal Plain, on the Northern Neck peninsula, Richmond County. It drains to the Chesapeake Bay via the Rappahannock River and includes all contiguous waters upstream of the line formed between the points with coordinates 37.796 N, 76.652 W and 37.790 N, 76.635 W (Map 6.2, Page 15).

1.2 Discharges

- **Farnham Creek:** Southwest into the Rappahannock River
- **Lancaster/Morattico Creek:** Southwest into the Rappahannock River

1.3 Drainage Areas of Watershed

- **Farnham Creek:** Approximately 16.31 square miles, or 10,438 acres
- **Lancaster(Richmond County Side)/Morattico Creek:** Approximately 18.12 square miles, or 11,594 acres

1.4 Shoreline

- **Farnham Creek:** Approximately 5.29 miles, or 27,933 feet
- **Lancaster(Richmond County Side)/Morattico:** Approximately 12.621 miles, or 66,642 feet

1.5 Water Characteristics

- **Farnham Creek:** Mesohaline (7.6 to 10.0 ppt salinity), subject to the action of tides and annual rainfall.
- **Lancaster/Morattico Creek:** Mesohaline (10.1 to 12.5 ppt salinity), subject to the action of tides and annual rainfall.

Source: www.chesapeakebay.net/content/maps/cbp_20191.pdf

1.6 Depth

- **Farnham Creek:** Shallow, with a maximum depth of 6 feet at its widest section next to very shallow banks close to a peninsula that separates most of the creek from the Rappahannock River. The rest of the creek alternates between 2 and 3 feet. (Map 6.3, Page 16)
- **Lancaster/Morattico Creek:** A maximum depth of 6 feet can be found at the center of the widest section (closest to the Rappahannock River). The rest of the area alternates between 1 and 4 feet farther in for both the Morattico and Lancaster branches, with 4-to-5 feet around the mouths of both branches. (Map 6.4, Page 17)

1.7 Certification of Need

In accordance with the Code of Federal Regulations—40 CFR §140.4(a)—this application requests that the U.S. Environmental Protection Agency (EPA) **determine that adequate facilities be reasonably available for the safe and sanitary removal and treatment of sewage from all vessels using the waters described herein**, and that approval of a *No Discharge Zone* for the boundaries defined in this application be granted.

Given approval from EPA, the Commonwealth of Virginia intends to prohibit all vessel sewage discharges, whether treated or untreated, into the *No Discharge Zone* proposed by this application. The following pages document the environmental status of the watershed. They also document that adequate sewage-removal facilities are available to justify a *No Discharge Zone* designation.

1.8 Proposed Boundaries of the No Discharge Zone

- **Farnham Creek:** All contiguous waters upstream of the line formed between the points with coordinates 37.826 N, 76.682 W and 37.825 N, 76.680 W (Map 6.1, Page 14)
- **Lancaster/Morattico Creek:** "All Richmond County waters upstream of the line formed between the two points with coordinates 37.796 N, 76.652 W and 37.790 N, 76.635 W (Map 6.2, Page 15)

2. RESOURCES AND ENVIRONMENTAL ISSUES

The water bodies being considered by this *No Discharge Zone* application are **tributaries to the Rappahannock River**, which in turn drains to the Chesapeake Bay, one of the largest estuarine systems in the United States, and one of the country's most important natural resources.

2.1 Human Use

- **Development on Watershed**
 - **Farnham Creek:** The community that encompasses the drainage area of this water body has a total of **642 E911 building structures**. During the warmer months, as visitors and full- and part-time residents use the marinas and anchorages in the area, the local population is estimated to double.
 - **Lancaster/Morattico Creek:** a total of **859 E911 building structures**. During the warmer months, as visitors and full- and part-time residents use the marinas and anchorages in the area, the local population is estimated to double.
- **Water Access:** There are no vessel anchorages, and only two public boat ramps. Farnham Creek Landing is a rudimentary mud-bank boat launch located upstream for car-top boats and kayaks. The nearest public paved boat ramp is located at Simonson in Richmond County.
 - **Farnham Creek:** A boat launch is available at the end of State Route 608. This is suitable for vessels no larger than car-top boats and kayaks.
 - **Lancaster/Morattico Creek:** A marina is located near the mouth of Morattico Creek, some 5,000 feet east of Lancaster Creek. There is also a public ramp on the Simonson peninsula between Lancaster Creek and Morattico Creek. See Section 3 for details on marina facilities.
- **Activities:** Boating, fishing, shellfish harvesting, crabbing, water skiing, and swimming. Transient recreational vessels use the creek for rest and re-fitting, anchorage, mooring, and other services while transiting the Rappahannock River and the Chesapeake Bay, whose waters are plied by vessels of all sizes and types, including sailing vessels, motor yachts, commercial tugs, fishing vessels, personal watercraft, canoes, kayaks, and skiffs.

2.2 Wildlife

Several water-dependent species utilize these waters. A list can be found in Section 8.1. Bald Eagles are regularly seen foraging in the waters of the Rappahannock River and its minor tributaries.

- **Fish:** Croaker, Spot, Gray Trout, Red Drum, and Flounder. Also found: migrating populations of hickory and American shad, striped bass, alewife, yellow perch, short-nose sturgeon and Atlantic sturgeon, and other anadromous fish.
- **Marine mammals:** Bottlenose dolphins utilize these waters, as well as Harbor Porpoises.
- **Reptiles:** Kemps-Ridley, loggerhead and green sea turtles.
- **Avian:** Bald eagles, kingfishers, gulls, herons, loons, various species of ducks, etc.

2.3 Water Quality Issues

- **Total Maximum Daily Load (TMDL) & Bacterial Impairments:** Farnham Creek and Lancaster/Morattico Creek are listed on the 303(d) List of Impaired Waters as impaired for bacterial contamination based on state water-quality standards for shellfish.

- **Dissolved Oxygen:** All waters are listed as impaired by the 2006 Water Quality Assessment for Dissolved Oxygen. Additionally, all waters of the Rappahannock River and the Chesapeake Bay and its tributaries are listed as impaired due to excess nutrients.
- **Aquatic Plants (macrophytes):** All waters are listed as impaired for aquatic plants.
- **Monitoring:** The Virginia Department of Health's Division of Shellfish Sanitation (VDH-DSS) operates an extensive bacteria monitoring network in these waters and other designated shellfish waters in the Commonwealth. The Virginia Department of Environmental Quality also maintains a long-standing monitoring program in **Farnham Creek, Lancaster/Morattico Creek** and the **Rappahannock River**. Parameters measured include chemical and bacteriological data that are analyzed at fixed stations. The VDH-DSS monitoring has revealed that **Farnham Creek** and **Lancaster/Morattico Creek** routinely fail to meet water-quality standards for shellfish, with many areas under seasonal or annual condemnations (Map 6.5 on Page 18, and 6.6 on Page 19).

Although many sources potentially contribute to declining water quality in these waters, it can be assumed that discharges from vessels, anchored, docked, moored or operating within them contribute the overall bacterial load.

Even treated sanitary wastewater discharged from boats is relatively concentrated, having fecal coliform counts ranging from 200 to more than 1,000 Most Probable Number (MPN) per 100 milliliters of water. The average marine sanitation device provides little, if any, treatment for chemical or biological oxygen demand, phosphorus, or nitrogen.

Typical Chemical Constituents Measured in
Recreational Vessel's Holding Tanks

Chemical Procedure	Unit	Result	Report Limit
BOD	mg/l	2,800	2
COD	mg/l	5,000	25
TKN	mg/l	2,290	.50
Total P	mg/l	113	.20
Fecal Coliform	FC/100 ml	29,000,000	ND

Source: Lynnhaven Boat Wastewater Sampling Program. January 7, 2008

Wastewater discharges from marine vessels contain additional pollutants, such as viruses and deodorant chemicals that are potentially harmful to humans, wildlife, and the environment, and can lead to a variety of environmental ills.

2.4 Shellfish

The current shellfish standard for fecal coliform bacteria allows for a maximum geometric mean of 14 per 100 milliliters (ml) of water and a 90th percentile not to exceed 49 MPN/100ml over a 30-month period.

Under this standard, the water-quality data from VDH-DSS monitoring indicates that significant areas of the subject waters in this application failed to meet the National Shellfish Sanitation Standard for fecal coliform bacteria (Map 6.5 on Page 18, and 6.6 on Page 19).

Condemnation under the DSS classification means it is "unlawful for any person, firm, or corporation to take shellfish from these sections for any purpose, except by permit granted by the Marine Resources Commission, as provided in Section 28.2-810 of the Code of Virginia."

The condemnation is put into effect based on the potential threat to human health resulting from contaminated shellfish consumption. Shellfish closures to the waters in the designated *No Discharge Zones* vary in size and extent from year to year due to precipitation-driven runoff from the land surface. Trends over the past decade have shown that bacteria levels in these waters are increasing, resulting in expanded shellfish condemnations.

This is in part due to increased residential shoreline development with their attendant dependence on septic systems and increased boating activity.

3. FACILITY INFORMATION

The Virginia Department of Health (VDH) ensures the presence of proper sanitary facilities at marinas. Standards are set forth in the *Commonwealth of Virginia Sanitary Regulations for Marinas and Boat Moorings*, and marina facilities are inspected annually by VDH for compliance with the regulations (See Section 8.5, Page 25).

The following sanitary facilities are currently available within or at a reasonable distance from the proposed *No Discharge Zone* (Map 6.1 on Page 14, and 6.2 on Page 15):

Marinas - Richmond County													
Body of Water County / Marina ID	Marina Name, Address & Phone/ Lat & Long	County / Marina ID Body of Water	Seasonal Slips	Transient Slips	Fuel	Water	Electric	Ramp	Railway	Hoist	Repair	Operating Schedule	Septic Pumpout Fee
Farnham Creek	NONE												
Lancaster/Morattico Creek	Whelan's Marina & Campground 3993 Hales Point Rd., Farnham, VA 22460 804-394-9500 Latitude 37 47.99 Longitude 76 38.962	Richmond / 923 Lancaster/Morattico Creek	38	0	X	X	X	X		X	X	12 months/year 7 days/week 8am-5pm	\$5

<http://www.vdh.virginia.gov/EnvironmentalHealth/Wastewater/MARINA/pumpoutdata/county/richmond.htm> - Last Updated: 09-26-2007

3.1 Facility Maintenance

Routine health department inspections and tests are performed to ensure that all the facilities listed above are open to the public and functioning properly. Broken pump-out stations can be reported by calling the VDH Marina Program. Specific design and operation requirements are addressed in *The Virginia Sanitary Regulations for Marinas and Boat Mooring* (Section 8.5, Page 25).

3.2 Facility Waste Treatment Method

All waste collected by the above listed marinas is disposed of and preliminarily treated in an onsite septic sewage system. The Chesapeake Bay Act requires that onsite sewage system tanks be pumped

out every five years. All wastes are collected from pump-outs and dump stations and transported by haulers who deliver them to municipal waste treatment facilities or private facilities—permitted under the Virginia Pollutant Elimination Discharge System—for the final treatment and disposal. Regulations for these activities are addressed in *The Commonwealth of Virginia Sanitary Regulations for Marinas and Boat Moorings* (See Section 8.5, Page 25).

3.3 Number of Vessels and Estimated Number of Facilities Needed

To calculate the estimated number of vessels in the *No Discharge Zone* proposed by this application, four different sources were used:

- Field surveys conducted by the NNPDC and submitted by marina operators
- Department of Game and Inland Fisheries (vessel registration database)
- Virginia Department of Health, Division of Waste Water Engineering (marina database)
- Federally-documented vessels (U.S. Coast Guard)

Estimates based on combining the number of boats registered in the region and documented federally (exempt from Virginia registration) far exceed those derived from slip counts or marina data. In the interest of obtaining a conservative estimate of the number of facilities needed to provide pumpout and dump-station services for every potential vessel in the proposed *No Discharge Zones*, this application therefore uses the combined population estimates from the Virginia Department of Game and Inland Fisheries and the U.S. Coast Guard.

To calculate the actual estimates, this application utilizes an Environmental Protection Agency formula, titled *Boater Sanitary Waste Reception Facility Requirements Worksheet* (See Section 7, Page 20).

The data provide a **total of 1,453** vessels for **Richmond County**. Of those, **24 are 26-to-40 feet in length**, and **841 are 16-to-26 in length**. The EPA formula considers vessels with holding tanks, peak occupancy rates of marinas, and the average number of hours the marinas operate to come up with the estimated number of pumpout facilities and dump stations required for the area being proposed as a *No Discharge Zone*. For **Richmond County**, the formula states that **the need is less than one pumpout facility** (0.03) and **less than one dump station** (0.43) to serve the estimated **865 vessels** expected to use such services (See Section 7, Page 20).

As noted in Section 3 above, **Richmond County** has a marina with both a dump station and pumpout facility for its customers within the proposed *No Discharge Zone*. See Map 6.2, Page 15, for details.

4. ENFORCEMENT, SUPPORT, AND OUTREACH ACTIVITIES

4.1 State Regulations

The Virginia State Water Control Law (§62.1-44.33) addresses vessel discharges and provides authority for the State Water Control Board to adopt regulations controlling discharges from boats. This section of the law also provides that “Violation of such rules and regulations and violations of the prohibitions created by this section on the discharge of treated and untreated sewage from documented and undocumented boats and vessels shall, upon conviction, be a Class 1 misdemeanor. Every law-enforcement officer of this Commonwealth and its subdivisions shall have the authority to enforce the rules and regulations adopted and promulgated under the provisions of this section and to enforce the prohibitions on the discharge of treated and untreated sewage created by this section.”

The current boating regulation that results from this authority is entitled “Regulations Governing the Discharge of Sewage and Other Wastes from Boats” (9 VAC 25-71). This regulation contains a section that addresses No Discharge Zones:

- A. *All discharge of sewage, whether treated or not, and other wastes from all vessels into designated No Discharge Zones is prohibited. A listing of designated No Discharge Zones within the state appears at 9 VAC 25-71-70.*
- B. *Vessels without installed toilets shall dispose of any collected sewage from portable toilets or other containment devices at facilities approved by the Virginia Department of Health for collection of sewage wastes, or otherwise dispose of sewage in a manner that complies with state law.*
- C. *Vessels with installed toilets shall have a marine sanitation device to allow sewage holding capacity unless the toilets are rendered inoperable.*
- D. *Houseboats having installed toilets shall have a holding tank with the capability of collecting and holding sewage and disposing of collected sewage at a pump-out facility or other facility approved by the Virginia Department of Health for collection of sewage wastes; if a houseboat lacks such capability, the installed toilet shall be removed.*
- E. *Y-valves, macerator pump valves, or any other through-hull fitting valves capable of allowing a discharge of sewage from marine sanitation devices shall be secured in the closed position by a device that is not readily removable, including, but not limited to, a numbered container seal, such that through-hull sewage discharge capability is rendered inoperable.*
- F. *Every owner or operator of a marina within a designated No Discharge Zone shall notify boat patrons leasing slips of the sewage discharge restriction in the No Discharge Zone. As a minimum, notification shall consist of No Discharge Zone information in the slip rental contract and a sign indicating the area is a designated No Discharge Zone.*

4.2 Local Enforcement Capability

Should these waters be designated a *No Discharge Zone*, in addition to the U.S. Coast Guard, the Virginia Marine Police and the Virginia Department of Game and Inland Fisheries will be the state enforcing authorities. **The U.S. Coast Guard Station at Milford Haven (on Hills Bay) is 29 to 32**

nautical miles southeast of the proposed *No Discharge Zones*. Both the Virginia Marine Resources Marine Patrol and the Department of Game and Inland Fisheries Game Wardens store and/or launch from public facilities in the area and patrol the proposed waters.

Additionally, DEQ and the VDH-DSS are frequently in these waters to monitor for pollutants. Both can act as an auxiliary to the state and federal police functions. Various enforcement methods are under review, including the use of NSF 60 fluorescent yellow/green dye tablets added to vessel holding tanks to detect illegal discharges. The dye tablets could be installed in holding tanks on a voluntary basis by marina operators and boaters, as well as by those using pumpout stations.

4.3 Local Public Support and Outreach

No Discharge Zone designation has the support of environmental interests represented by the Alliance for the Chesapeake Bay, as well as state agencies of the Commonwealth, including the Virginia Department of Health, the Virginia Marine Resources Commission, and the Virginia Department of Conservation and Recreation. In informal meetings with vessel operators, and at the public meeting, overall support for a No Discharge Zone in these waters was communicated to staff of the Virginia Department of Environmental Quality.

The public meeting took place on ***** TBA *****. Records and comments from the meeting are attached to this application (See Section 9, Page 30).

4.4 Existing Point Source Pollution

The majority of land-based activities potentially contributing to bacteriological contamination of **Farham** and **Lancaster/Morattico Creeks** remain to be addressed by the community, the county, and the state. All of the waterfront homes in these watersheds are on individual or small community septic fields, as there is no sewer system in this part of rural Virginia.

There are **no** marinas, industrial sites, or sewage-treatment plants with Virginia Pollutant Discharge Elimination System (VPDES) permits for **Farnham** and **Lancaster/Morattico Creeks**. None of the remaining waters in the proposed *No Discharge Zone* area has permitted sanitary discharges.

VPDES Permits for Sanitary Discharges

Facility Name	VPDES Permit Number	Receiving Water	Type of Discharge	Type of Permit
N/A				

Source: http://www.deq.virginia.gov/mapper_ext/default.aspx?service=publicMaps/Whats_in_my_backyard

5. SUMMARY

The small tributaries to the **Rappahannock River** that are the subject of this application need greater protection than the current federal standards afford. The shallow waters of these creeks are compromised by bacterial impairment, low dissolved oxygen as well as conditions that impair the growth of aquatic plants. These conditions cause the waters of Farnham and Lancaster/Morattico Creeks not to meet state water-quality standards. While terrestrial pollution is a threat to these marine natural resources and is acknowledged to be a

source of pollution, vessel pollution is direct and proximate to creek waters, and therefore has a larger impact on the local water quality in the creeks, as well as the oyster resources that are present there.

Pump-out facilities and dump stations—either in the affected waters or their vicinity—are present in sufficient numbers to serve the boating population using these waters. They provide for the proper disposal and treatment of collected wastes.

Enforcement and public outreach can be provided by the U.S. Coast Guard, the Virginia Marine Police, the Virginia Department of Environmental Quality, and the Virginia Department of Health.

The Commonwealth of Virginia believes the waters addressed in this application are excellent candidates for the designation as a *No Discharge Zone*.

6. MAPS

6.1 Farnham Creek Proposed No Discharge Zone



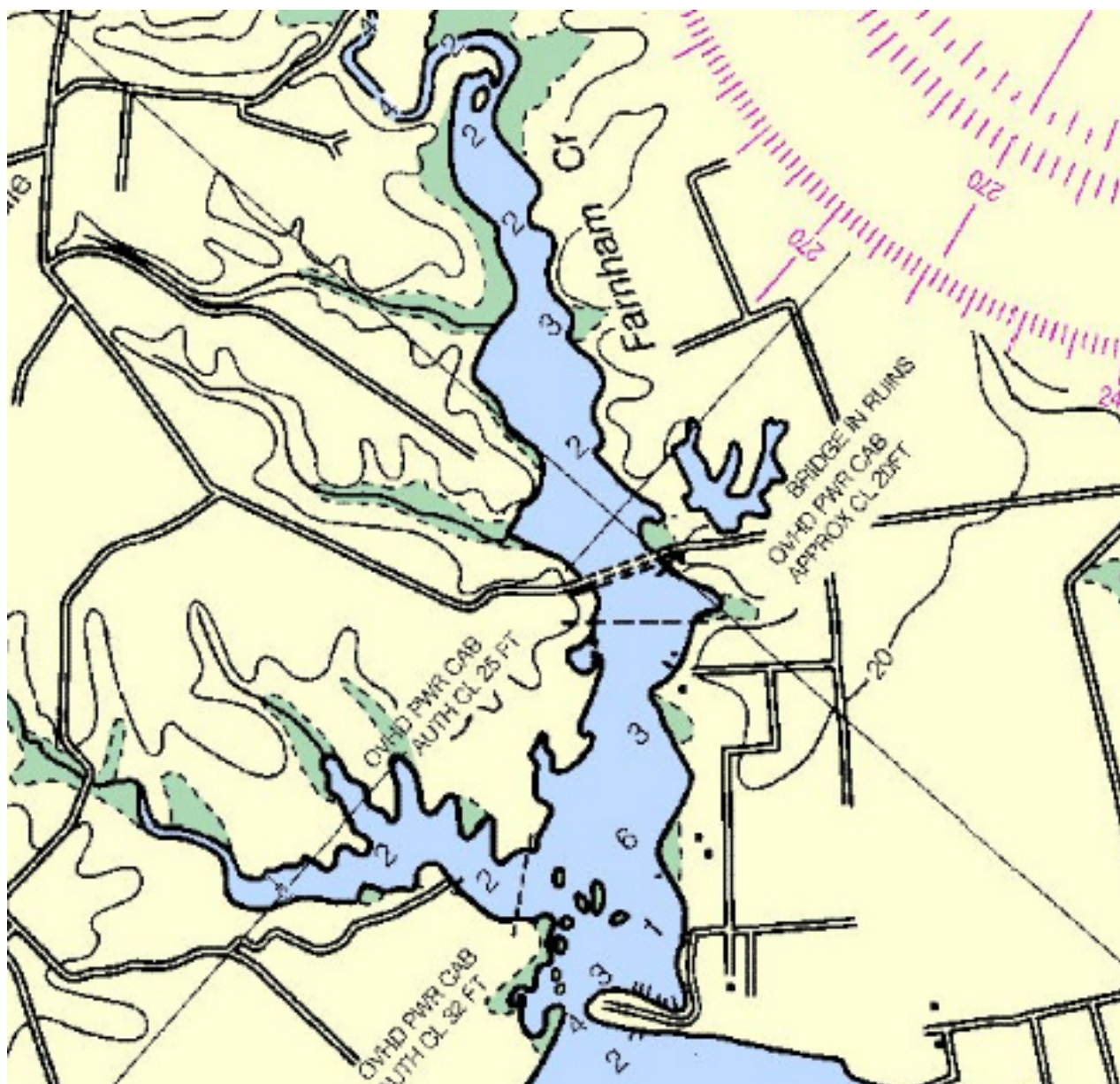
Source: Northern Neck Planning District Commission

6.2 Lancaster/Morattico Creek Proposed No Discharge Zone



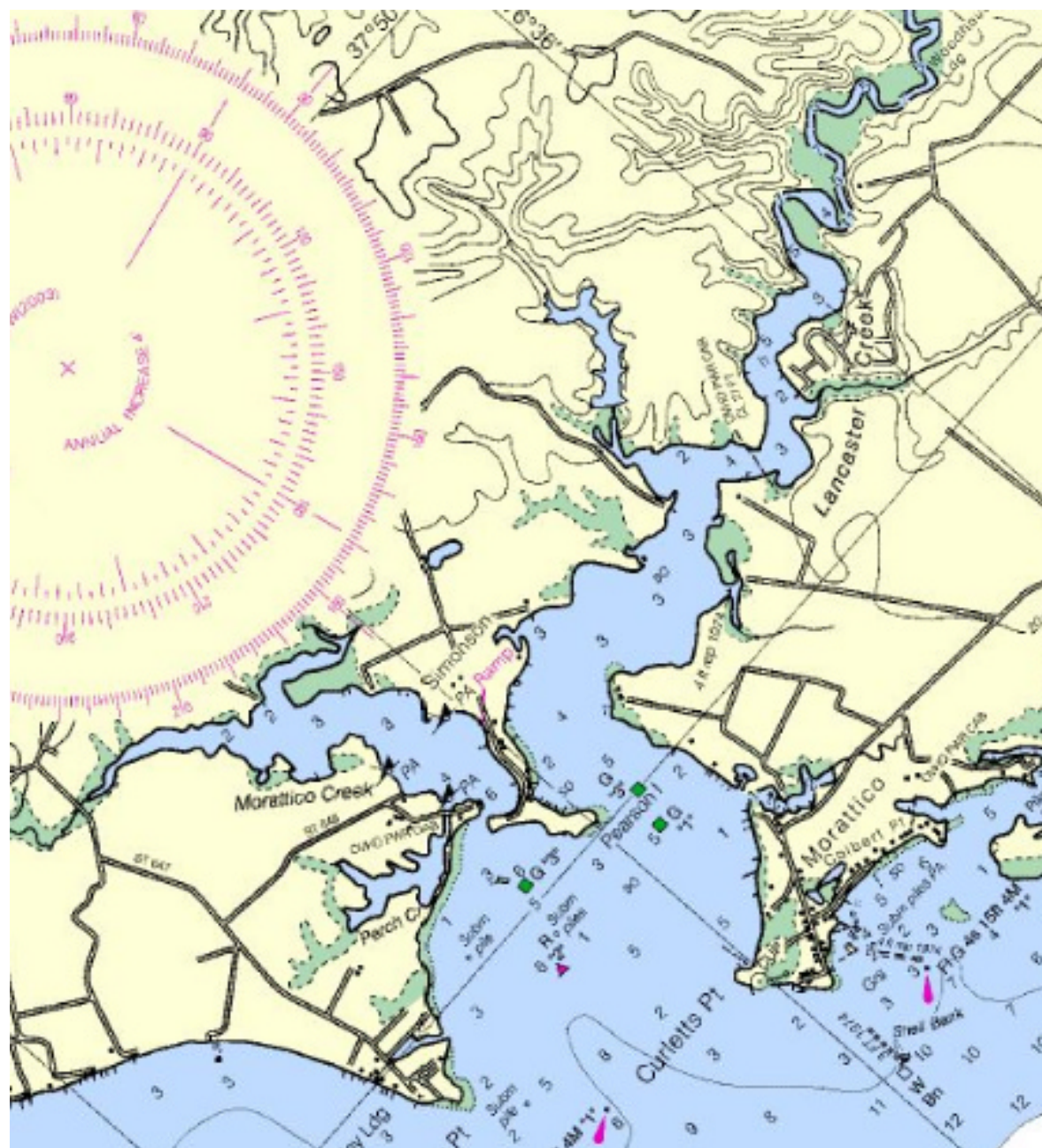
Note : A separate application for Lancaster County addresses the other half of Lancaster Creek.
Source: Northern Neck Planning District Commission

6.3 Farnham Creek Water Depth



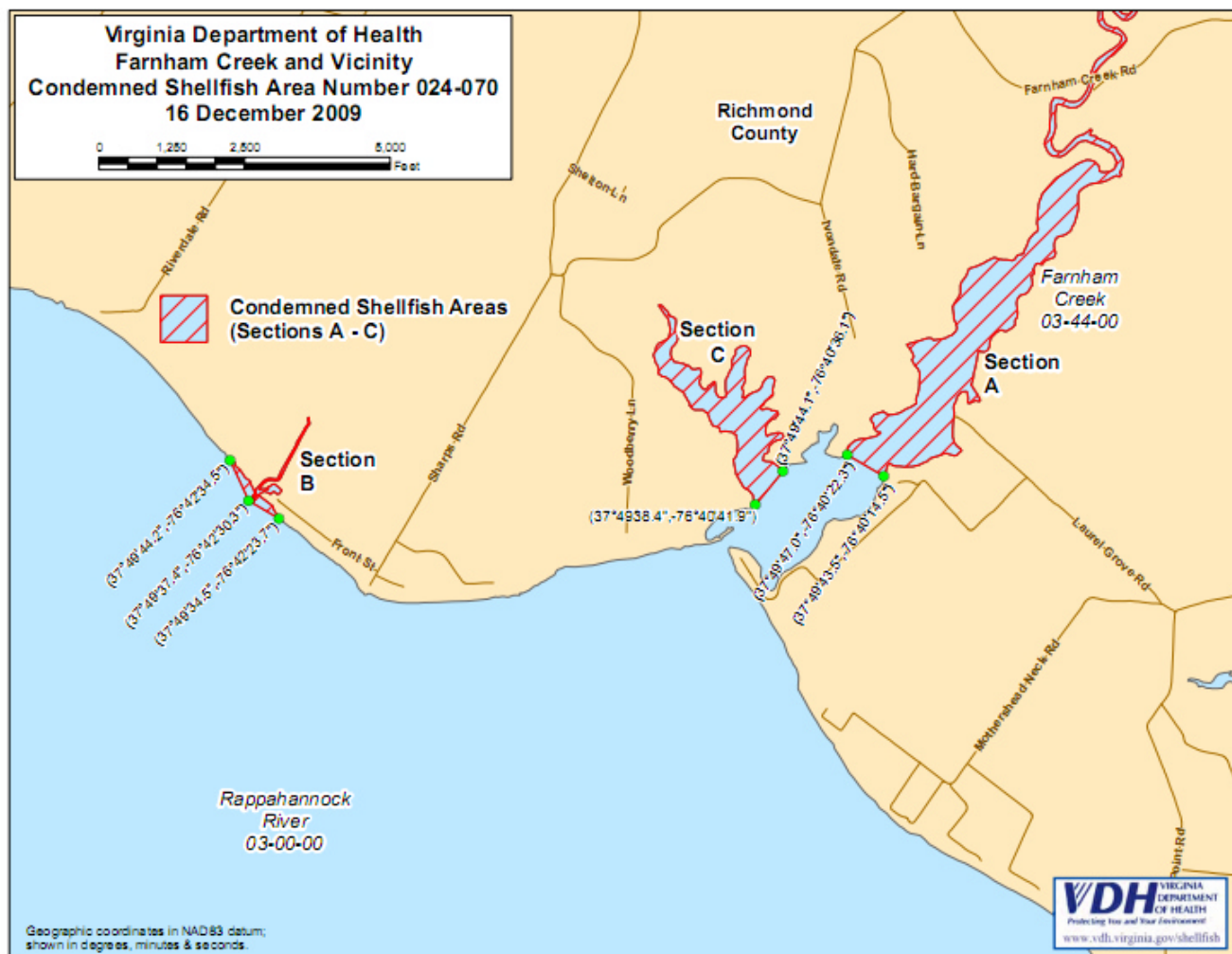
Source: <http://www.charts.noaa.gov/OnLineViewer/12237.shtml>

6.4 Lancaster/Morattico Creek Water Depth



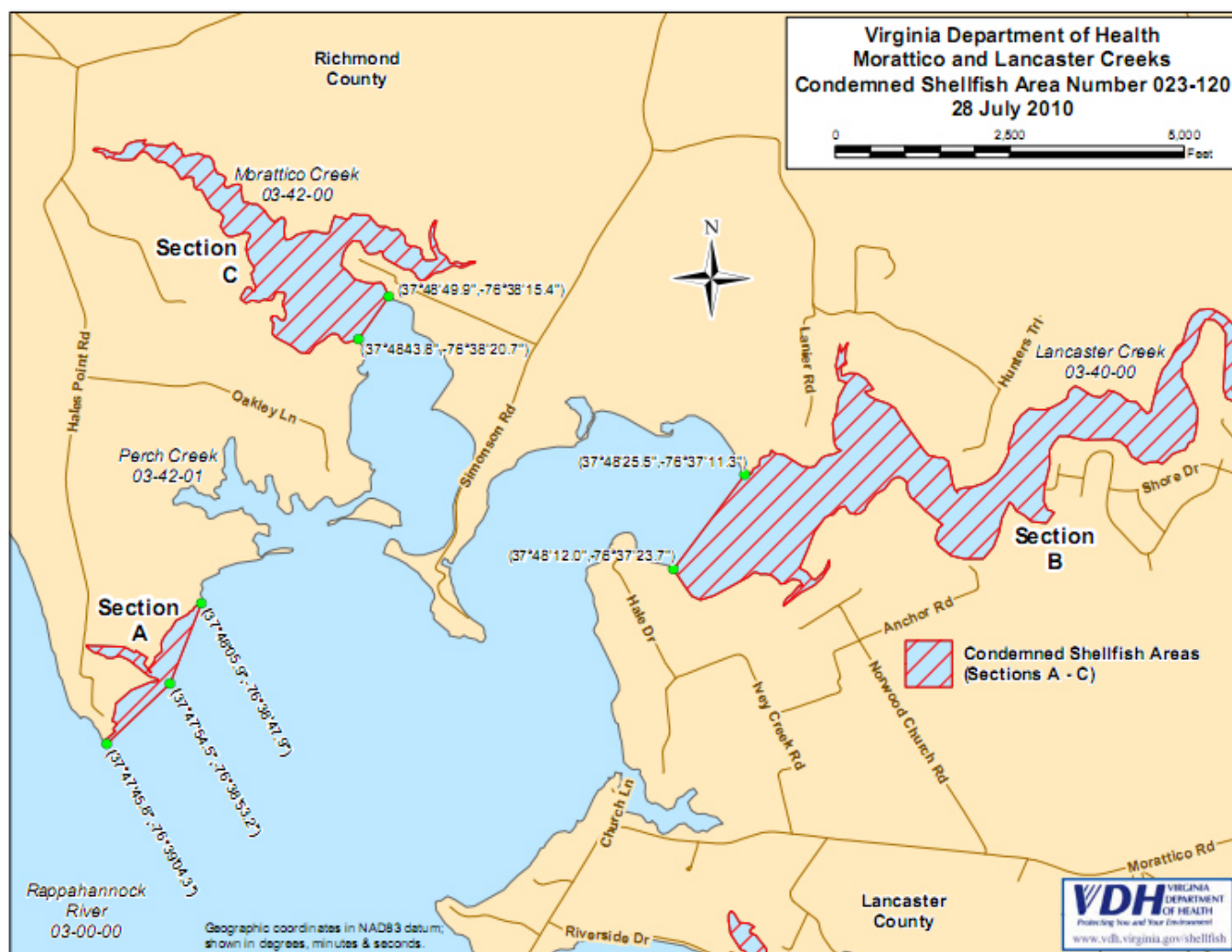
Source: <http://www.charts.noaa.gov/OnLineViewer/12237.shtml>

6.5 Farnham Creek Condemned Shellfish Area Map



Source: <http://www.vdh.virginia.gov/EnvironmentalHealth/shellfish/closure/cond024-070.pdf>

6.6 Lancaster/Morattico Creek Condemned Shellfish Area Map



Source: <http://www.vdh.virginia.gov/EnvironmentalHealth/shellfish/closure/cond023-120.pdf>

7. FACILITY REQUIREMENTS WORKSHEET

RICHMOND COUNTY

VESSEL LENGTH	Field Data	DGIF Data	VDH Data	Documented	ESTIMATE
Less than 16 feet	-	587	-	-	587
16 to 26 feet	300	841	111	-	841
27 to 40 feet	50	16	4	8	24
Over 40 feet	-	-	-	1	1
TOTAL	350	1,444	115	9	1,453
	0%	100%	0%	100%	

Estimate of Required Pumpout Facilities	
Number of vessels 27-40 ft. in length	24
Enter % of 27-40 ft. vessels with holding tanks in Virginia ***	25%
Estimated number of 27-40 ft. vessels with holding tanks	6
Enter the number of vessels greater than 40 ft. in length	1
Estimated total number of vessels with holding tanks	7
Estimated peak occupancy rate (i.e. on a holiday weekend; if unknown, use 40%)	40%
Estimated number of vessels requiring pumpout facilities	3
Average number of vessels served per hour at pumpout (if unknown, use 4/hr)	4
Average number of hours of operation per weekend (if unknown, use 24 hrs.)	24
Estimated number of vessels served per pumpout facility	96
Estimated number of pumpout facilities required	0.03

Estimate of Required Dump Stations	
Number of vessels 16-26 ft. in length	841
Enter % of 16-26 ft. vessels with portable toilets in Virginia ***	37%
Estimated number of vessels with portable toilets	312
Estimated peak occupancy rate (if unknown, use 40%)	40%
Estimated number of vessels requiring dump stations	125
Average number of vessels served per hour at dump station (if unknown, use 12/hr)	12
Average number of hours of operation per weekend (if unknown, use 24 hrs.)	24
Estimated number of vessels served per dump station	288
Estimated number of dump stations required	0.43

* DGIF Data lists the total number of registered vessels per Virginia County. The estimated number of vessels for each watershed is calculated by the number of structures that have been built in the watershed as a proportion of the county's total number of structures built in all of the county's watersheds

*** Source: "Clean Vessel Act: Pumpout Station and Dump Station Technical Guidelines," Federal Register, Vol. 59, No. 47, March 10, 1994; and "National Recreational Boating Survey: Sanitation Pumpout Questionnaire Tabulations," U.S. Department of Fish and Wildlife Service, January 1992.

Note: Original worksheet's 26-to-40-foot category adjusted to 27-to-40 to avoid overlapping.

8. REFERENCES

8.1 Species

Farnham Creek: 435 Known or Likely Species (displaying first 37; for remainder of list, see source below):

BOVA Code	Status*	Tier**	Common Name	Scientific Name
030074	FESE		Turtle, Kemp's (= Atlantic) Ridley sea	Lepidochelys kempii
030071	FTST	I	Turtle, loggerhead sea	Caretta caretta
030072	FTST		Turtle, green sea	Chelonia mydas
040096	ST	I	Falcon, peregrine	Falco peregrinus
040129	ST	I	Sandpiper, upland	Bartramia longicauda
040093	FSST	II	Eagle, bald	Haliaeetus leucocephalus
040372	SS	I	Crossbill, red	Loxia curvirostra
010032	SS	II	Sturgeon, Atlantic	Acipenser oxyrinchus
030067	CC	II	Terrapin, northern diamond-backed	Malaclemys terrapin terrapin
040029	SS	II	Heron, little blue	Egretta caerulea caerulea
040381	SS	II	Sparrow, saltmarsh sharp-tailed	Ammodramus caudacutus
040186	SS	II	Tern, least	Sterna antillarum
040266	SS	II	Wren, winter	Troglodytes troglodytes
030063	CC	III	Turtle, spotted	Clemmys guttata
040094	SS	III	Harrier, northern	Circus cyaneus
040034	SS	III	Heron, tricolored	Egretta tricolor
040040	SS	III	Ibis, glossy	Plegadis falcinellus
040036	SS	III	Night-heron, yellow-crowned	Nyctanassa violacea violacea
040204	SS	III	Owl, barn	Tyto alba pratincola
040270	SS	III	Wren, sedge	Cistothorus platensis
040264	SS	IV	Creepers, brown	Certhia americana
040180	SS	IV	Tern, Forster's	Sterna forsteri
040364	SS		Dickcissel	Spiza americana
040032	SS		Egret, great	Ardea alba egretta
040366	SS		Finch, purple	Carpodacus purpureus
040285	SS		Kinglet, golden-crowned	Regulus satrapa
040112	SS		Moorhen, common	Gallinula chloropus cachinnans
040262	SS		Nuthatch, red-breasted	Sitta canadensis
040020	SS		Pelican, brown	Pelecanus occidentalis carolinensis
040189	SS		Tern, Caspian	Sterna caspia
040278	SS		Thrush, hermit	Catharus guttatus
040314	SS		Warbler, magnolia	Dendroica magnolia
050045	SS		Otter, northern river	Lontra canadensis lataxina
040110		I	Rail, black	Laterallus jamaicensis
040225		I	Sapsucker, yellow-bellied	Sphyrapicus varius
040319		I	Warbler, black-throated green	Dendroica virens
070148		I	Amphipod, Lancaster County	Crangonys baculispina

* FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; FS=Federal Species of Concern; SC=State Candidate; CC=Collection Concern; SS=State Special Concern

** I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need

Source: Virginia Department of Game and Inland Fisheries - http://vafwis.org/fwis/?Menu=Home.__By+Place%20Name

Lancaster/Morattico Creek: 450 Known or Likely Species (displaying first 39; for remainder of list, see source below):

BOVA Code	Status*	Tier**	Common Name	Scientific Name
010031	FESE	I	Sturgeon, shortnose	Acipenser brevirostrum
030074	FESE		Turtle, Kemp's (= Atlantic) Ridley sea	Lepidochelys kempii
030071	FTST	I	Turtle, loggerhead sea	Caretta caretta
030072	FTST		Turtle, green sea	Chelonia mydas
040096	ST	I	Falcon, peregrine	Falco peregrinus
040129	ST	I	Sandpiper, upland	Bartramia longicauda
040093	FSST	II	Eagle, bald	Haliaeetus leucocephalus
100001	FS	IV	fritillary, Diana	Speyeria diana
010032	SS	II	Sturgeon, Atlantic	Acipenser oxyrinchus
030067	CC	II	Terrapin, northern diamond-backed	Malaclemys terrapin terrapin
040029	SS	II	Heron, little blue	Egretta caerulea caerulea
040381	SS	II	Sparrow, saltmarsh sharp-tailed	Ammodramus caudacutus
040186	SS	II	Tern, least	Sterna antillarum
040266	SS	II	Wren, winter	Troglodytes troglodytes
030063	CC	III	Turtle, spotted	Clemmys guttata
040094	SS	III	Harrier, northern	Circus cyaneus
040034	SS	III	Heron, tricolored	Egretta tricolor
040040	SS	III	Ibis, glossy	Plegadis falcinellus
040036	SS	III	Night-heron, yellow-crowned	Nyctanassa violacea violacea
040204	SS	III	Owl, barn	Tyto alba pratincola
040270	SS	III	Wren, sedge	Cistothorus platensis
040264	SS	IV	Creeper, brown	Certhia americana
040180	SS	IV	Tern, Forster's	Sterna forsteri
040364	SS		Dickcissel	Spiza americana
040032	SS		Egret, great	Ardea alba egretta
040366	SS		Finch, purple	Carpodacus purpureus
040285	SS		Kinglet, golden-crowned	Regulus satrapa
040112	SS		Moorhen, common	Gallinula chloropus cachinnans
040262	SS		Nuthatch, red-breasted	Sitta canadensis
040020	SS		Pelican, brown	Pelecanus occidentalis carolinensis
040189	SS		Tern, Caspian	Sterna caspia
040188	SS		Tern, sandwich	Sterna sandvicensis acuflavidus
040278	SS		Thrush, hermit	Catharus guttatus
040314	SS		Warbler, magnolia	Dendroica magnolia
050045	SS		Otter, northern river	Lontra canadensis lataxina
040110		I	Rail, black	Laterallus jamaicensis
040225		I	Sapsucker, yellow-bellied	Sphyrapicus varius
040319		I	Warbler, black-throated green	Dendroica virens
070148		I	Amphipod, Lancaster County	Crangonyx baculispina

* FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; FS=Federal Species of Concern; SC=State Candidate; CC=Collection Concern; SS=State Special Concern

** I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need

Source: Virginia Department of Game and Inland Fisheries - http://vafwis.org/fwis/?Menu=Home.__By+Place%20Name

8.2 Public Support

WATER BODY	NDZ Interest (Written letter of support / request unless otherwise noted)		
	Government	Marina Owner	Citizen
Farnham Creek	DEQ, VDH	TBA	TBA
Lancaster/Morattico Creek	DEQ, VDH	TBA	TBA

8.3 Marine Sanitation Device (MSD) Standard

40 CFR §140.4(a)

TITLE 40 - PROTECTION OF ENVIRONMENT

CHAPTER I - ENVIRONMENTAL PROTECTION AGENCY

SUBCHAPTER D - WATER PROGRAMS

PART 140 - MARINE SANITATION DEVICE STANDARD

140.4 - Complete prohibition.

(a) Prohibition pursuant to CWA section 312(f)(3): a State may completely prohibit the discharge from all vessels of any sewage, whether treated or not, into some or all of the waters within such State by making a written application to the Administrator, Environmental Protection Agency, and by receiving the Administrator's affirmative determination pursuant to section 312(f)(3) of the Act. Upon receipt of an application under section 312(f)(3) of the Act, the Administrator will determine within 90 days whether adequate facilities for the safe and sanitary removal and treatment of sewage from all vessels using such waters are reasonably available. Applications made by States pursuant to section 312(f)(3) of the Act shall include: (1) A certification that the protection and enhancement of the waters described in the petition require greater environmental protection than the applicable Federal standard; (2) A map showing the location of commercial and recreational pump-out facilities; (3) A description of the location of pump-out facilities within waters designated for no discharge; (4) The general schedule of operating hours of the pump-out facilities; (5) The draught requirements on vessels that may be excluded because of insufficient water depth adjacent to the facility; (6) Information indicating that treatment of wastes from such pump-out facilities is in conformance with Federal law; and (7) Information on vessel population and vessel usage of the subject waters.

(b) Prohibition pursuant to CWA section 312(f)(4)(A): a State may make a written application to the Administrator, Environmental Protection Agency, under section 312(f)(4)(A) of the Act, for the issuance of a regulation completely prohibiting discharge from a vessel of any sewage, whether treated or not, into particular waters of the United States or specified portions thereof, which waters are located within the boundaries of such State. Such application shall specify with particularity the waters, or portions thereof, for which a complete prohibition is desired. The application shall include identification of water recreational areas, drinking water intakes, aquatic sanctuaries, identifiable fish-spawning and nursery areas, and areas of intensive boating activities. If, on the basis of the State's application and any other information available to him, the Administrator is unable to make a finding that the waters listed in the application require a complete prohibition of any discharge in the waters or portions thereof covered by the application, he shall state the reasons why he cannot make such a finding, and shall deny the application. If the Administrator makes a finding that the waters listed in the application require a complete prohibition of any discharge in all or any part of the waters or portions thereof covered by the State's application, he shall publish notice of such findings together with a notice of proposed rule making, and then shall proceed in accordance with 5 U.S.C. 553. If the Administrator's finding is that applicable water quality standards require a complete prohibition covering a more restricted or more expanded area than that applied for by the State, he shall state the reasons why his finding differs in scope from that requested in the State's application.

(1) For the following waters the discharge from a vessel of any sewage (whether treated or not) is completely prohibited pursuant to CWA section 312(f)(4)(A): (i) Boundary Waters Canoe Area, formerly designated as the Superior, Little Indian Sioux, and Caribou Roadless Areas, in the Superior National Forest, Minnesota, as described in 16 U.S.C. 577577d1.

(ii) Waters of the State of Florida within the boundaries of the Florida Keys National Marine Sanctuary as delineated on a map of the Sanctuary at <http://www.fknms.nos.noaa.gov/>.

(c)(1) Prohibition pursuant to CWA section 312(f)(4)(B): A State may make written application to the Administrator of the Environmental Protection Agency under section 312(f)(4)(B) of the Act for the issuance of a regulation establishing a drinking water intake no discharge zone which completely prohibits discharge from

a vessel of any sewage, whether treated or untreated, into that zone in particular waters, or portions thereof, within such State. Such application shall: (i) Identify and describe exactly and in detail the location of the drinking water supply intake(s) and the community served by the intake(s), including average and maximum expected amounts of inflow; (ii) Specify and describe exactly and in detail, the waters, or portions thereof, for which a complete prohibition is desired, and where appropriate, average, maximum and low flows in million gallons per day (MGD) or the metric equivalent; (iii) Include a map, either a USGS topographic quadrant map or a NOAA nautical chart, as applicable, clearly marking by latitude and longitude the waters or portions thereof to be designated a drinking water intake zone; and (iv) Include a statement of basis justifying the size of the requested drinking water intake zone, for example, identifying areas of intensive boating activities.

(2) If the Administrator finds that a complete prohibition is appropriate under this paragraph, he or she shall publish notice of such finding together with a notice of proposed rulemaking, and then shall proceed in accordance with 5 U.S.C. 553. If the Administrator's finding is that a complete prohibition covering a more restricted or more expanded area than that applied for by the State is appropriate, he or she shall also include a statement of the reasons why the finding differs in scope from that requested in the State's application.

(3) If the Administrator finds that a complete prohibition is inappropriate under this paragraph, he or she shall deny the application and state the reasons for such denial.

(4) For the following waters the discharge from a vessel of any sewage, whether treated or not, is completely prohibited pursuant to CWA section 312(f)(4)(B): (i) Two portions of the Hudson River in New York State, the first is bounded by an east-west line through the most northern confluence of the Mohawk River which will be designated by the Troy-Waterford Bridge (126th Street Bridge) on the south and Lock 2 on the north, and the second of which is bounded on the north by the southern end of Houghtaling Island and on the south by a line between the Village of Roseton on the western shore and Low Point on the eastern shore in the vicinity of Chelsea, as described in Items 2 and 3 of 6 NYCRR Part 858.4.

(ii) [Reserved] [41 FR 4453, Jan. 29, 1976, as amended at 42 FR 43837, Aug. 31, 1977; 60 FR 63945, Dec. 13, 1995; 63 FR 1320, Jan. 8, 1998; 67 FR 35743, May 21, 2002]

Source: <http://cfr.vlex.com/vid/140-4-complete-prohibition-19813573>

8.4 Virginia House Bill 1774

2009 Session - Enrolled

VIRGINIA ACTS OF ASSEMBLY — CHAPTER

An Act to amend and reenact § 62.1-44.33 of the Code of Virginia, relating to establishing the tidal creeks of the Commonwealth as a "no discharge zone." [H 1774] Approved

Be it enacted by the General Assembly of Virginia:

1. That § 62.1-44.33 of the Code of Virginia is amended and reenacted as follows:
§ 62.1-44.33. Board to adopt regulations; tidal waters no discharge zones.

A. The State Water Control Board is empowered and directed to adopt all necessary regulations for the purpose of controlling the discharge of sewage and other wastes from both documented and undocumented boats and vessels on all navigable and nonnavigable waters within this Commonwealth. No such regulation shall impose restrictions that are more restrictive than the regulations applicable under federal law; provided, however, the Board may adopt such regulations as are reasonably necessary with respect to: (i) vessels regularly berthed in marinas or other places where vessels are moored, in order to limit or avoid the closing of shellfish grounds; and (ii) no discharge zones. Documented and undocumented boats and vessels are prohibited from discharging into the Chesapeake Bay and the tidal portions of its tributaries sewage that has not been treated by a Coast Guard-approved Marine Sanitation Device (MSD Type 1 or Type 2); however, the discharge of treated or untreated sewage by such boats and vessels is prohibited in areas that have been designated as no discharge zones by the United States Environmental Protection Agency.

B. The tidal creeks of the Commonwealth are hereby established as no discharge zones for the discharge of sewage and other wastes from documented and undocumented boats and vessels. The Board shall adopt regulations for designated no discharge zones requiring (i) boats and vessels without installed toilets to dispose of any collected sewage from portable toilets or other containment devices at marina facilities approved by the Department of Health for collection of sewage wastes, or otherwise dispose of sewage in a manner that complies with state law; (ii) all boats and vessels with installed toilets to have a marine sanitation device to allow sewage holding capacity unless the toilets are rendered inoperable; (iii) all houseboats having installed toilets to have a holding tank with the capability of collecting and holding sewage and disposing of collected sewage at a pump-out facility; if the houseboats lack such tank with such capability, the toilet must be removed; (iv) y-valves, macerator pump valves, or any other through-hull fitting valves capable of allowing a discharge of sewage from marine sanitation devices to be secured in the closed position by a device that is not readily removable, including, but not limited to, a numbered container seal such that through-hull sewage is rendered inoperable; and (v) every owner or operator of a marina within a designated no discharge zone to notify boat patrons leasing slips of the sewage discharge restriction in the no discharge zone. As a minimum, notification shall consist of no discharge zone information in the slip rental contract and a sign indicating the area is a designated no discharge zone.

In formulating regulations pursuant to this section, the Board shall consult with the State Department of Health, the Department of Game and Inland Fisheries and the Marine Resources Commission for the purpose of coordinating such regulations with the activities of such agencies.

For purposes of this section "no discharge zone" means an area where the Commonwealth has received an affirmative determination from the U.S. Environmental Protection Agency that there are adequate facilities for the removal of sewage from vessels (holding tank pump-out facilities) in accordance with 33 U.S.C. § 1322(f)(3), and where federal approval has been received allowing a complete prohibition of all treated or untreated discharges of sewage from all vessels.

C. Violation of such regulations and violations of the prohibitions created by this section on the discharge of treated and untreated sewage from documented and undocumented boats and vessels shall, upon conviction, be a Class 1 misdemeanor. Every law-enforcement officer of this Commonwealth and its subdivisions shall have the authority to enforce the regulations adopted under the provisions of this section and to enforce the prohibitions on the discharge of treated and untreated sewage created by this section.

8.5 Commonwealth of Virginia Sanitary Regulations for Marinas and Boat Moorings

Virginia Administrative Code, CHAPTER 570, Part I, Introduction, Article 1

12VAC5-570-10. Definitions.

As used in this chapter, the words and terms hereinafter set forth shall have the following meanings respectively, unless the context clearly requires a different meaning.

"Board" means the State Board of Health.

"Boat" means any vessel or other watercraft, privately owned or owned by the Commonwealth or any political subdivision thereof, whether moved by oars, paddles, sails or other power mechanism, inboard or outboard, or any other vessel or structure floating on water in the Commonwealth of Virginia, whether or not capable of self-locomotion, including but not limited to cruisers, cabin cruisers, runabouts, houseboats and barges. Excluded from this definition are commercial, passenger and cargo carrying vessels subject to the Quarantine Regulation of the United States Public Health Service adopted pursuant to Title 42 of the United States Code and ships or vessels of the U.S. Government and boats which are tenders to larger boats moored or stored at the same facility.

"Certificate" means a written approval from the Commissioner or his designated representative indicating that plans for sanitary facilities and sewage facilities meet or satisfy the minimum requirements of this chapter and § 32.1-246 of the Code of Virginia.

"Commissioner" means the State Health Commissioner whose duties are prescribed in § 32.1-19 of the Code of Virginia.

"Division" means the Division of Wastewater Engineering, Department of Health.

"Dry storage" means a boat storage or parking space, whether covered or uncovered, at a marina or other place where boats are moored for the purpose of storing boats on land between use.

"Marina" means any installation, operating under public or private ownership, which provides dockage or moorage for boats (exclusive of paddle or rowboats) and provides, through sale, rental or fee basis, any equipment, supply or service (fuel, electricity or water) for the convenience of the public or its leasee, renters or users of its facilities.

"Marine sanitation device" means any equipment, piping and appurtenances such as holding tanks for installation on board a boat which is designed to receive, retain, treat or discharge sewage and any process to treat such sewage.

"Other places where boats are moored" means any installation operating under public or private ownership, which provides dockage, moorage or mooring for boats (exclusive of paddle or rowboats) either on a free, rental or fee basis or for the convenience of the public.

"Owner" means the Commonwealth or any of its political subdivisions and any public or private institution, corporation, association, firm or company organized or existing under the laws of this or any other state or county, or any person or group of persons acting individually or as a group who owns a marina or other place where boats are moored.

"Pump-out facilities" means any device, equipment or method of removing sewage from a marine sanitation device. Also, it shall include any holding tanks either portable, movable or permanently installed, and any sewage treatment method or disposable equipment used to treat, or ultimately dispose of, sewage removed from boats.

"Sanitary facilities" means bathrooms, toilets, closets and other enclosures where commodes, stools, water closets, lavatories, showers, urinals, sinks or other such plumbing fixtures are installed.

"Seasonal slips" means any slip which is used, rented, leased or otherwise made available for mooring or docking of boats during the normal boating season, usually from April through September, or for any period greater than 30 days.

"Sewage" means the spent water or wastewater containing human excrement coming from toilets, bathrooms, commodes and holding tanks.

"Sewage treatment or disposal systems" means device, process or plant designed to treat sewage and remove solids and other objectionable constituents which will permit the discharge to another approved system, or an approved discharge to state waters or disposal through an approved subsurface drainfield or other acceptable method, such as incineration.

"Sewerage facilities" means entire sewage collection and disposal system including commodes, toilets, lavatories, showers, sinks and all other plumbing fixtures which are connected to a collection system consisting of sewer pipe, conduit, holding tanks, pumps and all appurtenances, including the sewage treatment or disposal system.

"Transient slips" means temporary docking or mooring space which may be used for short periods of time, including overnight, days, or weeks, but less than 30 days.

Statutory Authority: §§ 32.1-12 and 32.1-246 of the Code of Virginia.

Historical Notes: Derived from VR355-17-01 § 1.1, eff. September 1, 1987; amended, Virginia Register Volume 6, Issue 24, eff. October 1, 1990.

Source: <http://leg1.state.va.us/cgi-bin/legp504.exe?000+reg+12VAC5-570-10>

Article 2 - General Information

12VAC5-570-20. Authority for regulations.

Section 32.1-12 and 32.1-246 of the Code of Virginia provides that the State Board of Health is empowered and directed to promulgate all necessary rules and regulations establishing minimum requirements as to adequacy of sewerage facilities at marinas and other places where boats are moored. These facilities should be sufficient to serve the number of boat slips or persons such marinas and places are designed to accommodate, regardless of whether such establishments serve food.

Statutory Authority: §§ 32.1-12 and 32.1-246 of the Code of Virginia.

Historical Notes: Derived from VR355-17-01 § 1.2, eff. September 1, 1987; amended, Virginia Register Volume 6, Issue 24, eff. October 1, 1990.

Source: <http://leg1.state.va.us/cgi-bin/legp504.exe?000+reg+12VAC5-570-20>

8.6 Additional References and Sources

No Discharge Zones: How They Work

http://www.epa.gov/owow/oceans/regulatory/vessel_sewage/vsdarticle.html

Total Maximum Daily Loads (TMDLs)

A TMDL Study identifies sources of pollution and reductions needed from the identified pollutants to attain water quality standards. Pollution from both point sources (such as residential, municipal, or industrial discharges) and non-point sources (such as residential, urban, or agricultural runoff) are included in a TMDL study.

Virginia began work on approximately 240 TMDL projects in 2004, in addition to those that already existed, to address 125 impaired waters in the state.

TMDLs in Virginia:

<http://www.deq.virginia.gov/tmdl/homepage.html>

<https://www.deq.virginia.gov/TMDLDataSearch/ReportSearch.aspx>

APPROVED Shellfish TMDL Reports:

Farnham: <http://www.deq.virginia.gov/tmdl/apptmdls/shellfish/farnham.pdf>

Lancaster/Morattico: <http://www.deq.virginia.gov/tmdl/apptmdls/shellfish/lanc23.pdf>

For creeks that have not been approved yet:

<https://www.deq.virginia.gov/TMDLDataSearch/DraftReports.aspx>

To search for other creeks:

<http://www.deq.state.va.us/tmdl/develop.html>

Virginia Environmental Geographic Information Systems

Provides various interactive mapping layers covering aquatic life, fish consumption, public water supply, recreation use, shellfish use, wildlife use, citizen monitoring, and “what’s in my backyard.”
http://www.deq.virginia.gov/mapper_ext/index.html

VDH Shellfish Sanitation

Shellfish Closures – Regional Map

<http://www.vdh.virginia.gov/EnvironmentalHealth/Shellfish/closureSurvey/index.htm>

Pump-outs by County

<http://www.vdh.virginia.gov/EnvironmentalHealth/Wastewater/MARINA/pumpoutdata/county/index.htm>

Pump-outs and Closures: Lancaster County

<http://www.vdh.virginia.gov/EnvironmentalHealth/Wastewater/MARINA/pumpoutdata/county/lancaster.htm>

<http://www.vdh.virginia.gov/EnvironmentalHealth/Shellfish/closureSurvey/lancaster/index.htm>

Pump-outs and Closures: Northumberland County

<http://www.vdh.virginia.gov/EnvironmentalHealth/Wastewater/MARINA/pumpoutdata/county/northumberland.htm>

<http://www.vdh.virginia.gov/EnvironmentalHealth/Shellfish/closureSurvey/northumberland/index.htm>

Pump-outs and Closures: Richmond County

<http://www.vdh.virginia.gov/EnvironmentalHealth/Wastewater/MARINA/pumpoutdata/county/richmond.htm>

<http://www.vdh.virginia.gov/EnvironmentalHealth/Shellfish/closureSurvey/richmond/index.htm>

Pump-outs and Closures: Westmoreland County

<http://www.vdh.virginia.gov/EnvironmentalHealth/Wastewater/MARINA/pumpoutdata/county/westmoreland.htm>

<http://www.vdh.virginia.gov/EnvironmentalHealth/Shellfish/closureSurvey/westmoreland/index.htm>

Farnham Shellfish Condemnation Area Report:

<http://www.vdh.virginia.gov/EnvironmentalHealth/shellfish/closure/cond024-070.pdf>

Lancaster/Morattico Shellfish Condemnation Area Report:

<http://www.vdh.virginia.gov/EnvironmentalHealth/shellfish/closure/cond023-120.pdf>

Search for other creeks shellfish condemnation areas:

<http://www.vdh.virginia.gov/EnvironmentalHealth/Shellfish/closureSurvey/index.htm>

Navigation Charts

Rappahannock River (Entrance/Chesapeake Bay)

<http://www.charts.noaa.gov/OnLineViewer/12235.shtml>

Rappahannock River (Corrotoman to Fredericksburg)

<http://www.charts.noaa.gov/OnLineViewer/12237.shtml>

NOAA Nautical Charts

<http://www.charts.noaa.gov/OnLineViewer/AtlanticCoastViewerTable.shtml>

Center for Coastal Resources Management

Richmond County Shoreline Situation Report, 2000

<http://ccrm.vims.edu/gisdatabases.html>

Environmental Protection Agency (EPA)

Protecting Coastal Waters from Vessel and Marina Discharges:

A Guide for State and Local Officials. Volume I

Establishing No Discharge Areas under section 312 of the Clean Water Act

August 1994

Clean Water Act Section 312. November 27, 2002

Code of Federal Regulations Title 40: Protection of the Environment
Part 140: Marine Sanitation Device Standard

Virginia Department of Environmental Quality (DEQ)

Water Quality Monitoring
<http://www.deq.virginia.gov/watermonitoring>

Impaired Waters: 2008 Dissolved Oxygen Impairments
http://www.deq.virginia.gov/wqa/pdf/2008ir/maps/Impairments_2008_DO.pdf

Impaired Waters: Dissolved Oxygen Standards for the Chesapeake Bay and Tributaries
<http://www.deq.virginia.gov/wqs/homepage.html> (See pp. 44-45)

Impaired Water Search Form (All impaired waters by stream segment):
<http://gisweb.deq.virginia.gov/FactSheets2008/Choose.aspx>

What's in My Backyard?
http://www.deq.virginia.gov/mapper_ext/default.aspx?service=publicMaps/Whats_in_my_backyard

Virginia Water Quality Assessment 305(b)/303(d) Integrated Report, August 2006

Virginia Department of Game and Inland Fisheries (VDGIF)

2007 Boater Registration Data

Virginia Department of Health (VDH)

Marina Inspection Forms for 2007
Office of Environmental Health Services

Boat Holding Tank Pump-out Facilities in Virginia – 2007, pp. 9-11
Division of Wastewater Engineering, Marina Program

Virginia Department of Natural Resources

Chesapeake Bay and Virginia Waters Clean-up Plan. February 2007

U.S. Coast Guard

CG SECTOR HAMPTON ROADS (05-37070)
4000 COAST GUARD BOULEVARD
PORTSMOUTH, VA 23703
Primary Phone: (757) 668-5555 (OPT 2)
Emergency Phone: (757) 668-5555 (OPT 1)
Fax Number: (757) 295-2046
Rescue 21 VHF DSC MMSI Number: 003669922
URL: <http://www.uscg.mil/d5/sectHamptonRoads/>
Nautical Mile = 1.1508 Land Mile

9. PUBLIC MEETING

9.1 *** TBA ***